

A DISSERTATION
ON THE
BEST MODE OF TREATING
SPASMODIC CHOLERA;

WITH A VIEW OF ITS
HISTORY AND PROGRESS,
FROM ITS
ORIGIN IN INDIA, IN 1817, DOWN TO THE PRESENT TIME;

TOGETHER WITH
AN APPENDIX,
CONTAINING
A REVIEW OF DR. M'CORMAC'S PAMPHLET,
&c.

BY
GEORGE STUART HAWTHORNE, M.D.,
PHYSICIAN TO THE BELFAST FEVER HOSPITAL, ETC. ETC.

LONDON:
LONGMAN, REES, ORME, BROWNE, & GREEN.

MDCCCXXXIV.

A DISSERTATION,

37.

WHETHER Cholera be or be not a contagious malady, is a question which has been long warmly debated, *et adhuc sub judice lis est*. Neither has it been yet ascertained by what law its progress over so great a portion of the earth has been regulated. As the sun riseth in the east, and shineth unto the west, so hath been the origin and progress of this direful pestilence. Unchecked by country or climate, it has gone forth through the length and breadth of the land, leaving death and misery as the mementoes of its visit; and, like the destroying angel, armed with the power of Omnipotence, it has invaded alike the palace of the king, and the hut of the peasant, dealing forth indiscriminate slaughter, sparing neither rich nor poor, age nor sex.

It has assumed a fearful pre-eminence among the judgments which have visited our globe. The eyes of all the world are directed towards it; and that its visit is as certain as that of the king of terrors himself, all nations have taken for granted.

How the disease is propagated, and how it travels from country to country, and from city to city, is a subject on which there is a variety of opinions entertained by medical men. Some suppose that it at first originated from malaria, generated by the decomposition of animal or vegetable matter, or both, or from a something else, they know not what; and that it has since been propagated by contagion alone, and carried from place to place, by fomites that are known to imbibe and retain infection, and again to communicate it to those who may come within the sphere of its influence. Others attribute it to a certain specific poisonous vapour, forced from the bowels of the earth by some subterraneous commotion; and argue, that its sudden devastation in particular places can be accounted for on no other principle. A third assign its cause to animalcule;

and a fourth class of speculators believe it to arise from certain states of the atmosphere, produced by meteoric influence. The arguments on all sides are so ingenious, however, and the evidence in favour of the different theories adduced by each is so conflicting, that to enter into a discussion of the points at issue would require more space than can be allotted to it in a pamphlet of this description. I shall confine myself, therefore, to some general observations on the history of the disease, since its commencement in India in 1817.

Wherever the disease has appeared, it has afforded at least probable proofs of its being contagious; but it has unquestionably, at the same time, prevailed as an epidemic. When we take a view of its history from its origin, we find it starting up in many places simultaneously, leaving intervening cities and towns, even on the banks of the same river, untouched. In tracing its progress in India, the first appearance we find of any thing like it, is in May and June, 1817, at Nuddea, on the western branch of the Delta of the Ganges. It next appears on the 11th July at Patna, many hundred miles up the same river, and within less than a hundred miles of where it receives the Goggrah. Early in August it manifests itself at Calcutta; and, on the 7th of the same month, we have it at Dacca, two hundred miles north-east of that city, lying between the eastern branch of the Delta and the Megna or Brahmapootra river; on the 15th at Nattore, still east of the Delta; on the 18th at Chupra, on the opposite side of the Ganges from Patna, and still nearer to its junction with the Goggrah. On the 19th it assumed all the malignity of its present character at Jessore in the Delta of the Ganges. We find it again in the same month at Gazepoor, on the banks of the Ganges, one hundred miles beyond its junction with the Goggrah. I need not detain the reader by particularizing any more of the places in which the disease appeared in the same month of August, 1817; but shall merely observe, that in the course of that month it broke out, and raged with violence in ten different cities and towns in India, and some of these at a thousand miles distance. That the same combination of circumstances must have existed in all, is more than probable, as such a simultaneous attack of the disease, in so many places, and these at such a distance from each other, cannot, in my opinion, be satisfactorily accounted for on the principles of communicated contagion alone. This will appear more evident from what follows. On the 7th of November, the same year, the Cholera made great havoc

in the Marquis of Hastings' army encamped on the banks of the Sinde, above fifty miles from where it enters the Jumna, and many hundred miles west of Gazepoor. Now, the disease raged in Gazepoor in August, 1817; but we have no account of it in Benares until May the following year, though within a hundred miles of the former city, lying on the same side of the Ganges, and nearly in a direct line between it and the Marquis of Hastings' camp. Had the malady been propagated by contagion alone, why did it not appear in Benares, before it broke out in the camp of the Marquis of Hastings?

Almost all epidemic diseases, when once produced, become highly contagious. These prevail at certain seasons of the year, and under certain states of the atmosphere; but, when the circumstances which have combined to produce them cease to operate, they of course disappear. What tends, however, to set all speculation on this disease at defiance, is, that it seems to be uninfluenced either by season or circumstance.

Cholera had always existed in Hindostan as a comparatively mild disease, affecting a few individuals at certain seasons of the year; but, in the August of 1817, it broke out with unprecedented malignity and violence among the inhabitants of Jessore, a town situated a hundred miles north-east of Calcutta. It soon extended across Bengal, and then retired for some time to the western banks of the Ganges and Jumna. In Benares, such was its malignity, that in two months fifteen thousand persons perished.—Hence it gradually extended north and west to Lucknow, Delhi, Agra, &c. In the army under the Marquis of Hastings, consisting of eleven thousand five hundred troops and eighty thousand followers, it destroyed ten thousand persons in ten days. At this time the thermometer ranged from 90 to 100 degrees: the air was moist and suffocating, and the atmosphere a dead calm. The Cholera now directed its course along the Deccan, advancing, in many instances, at the rate of fifteen or eighteen miles a-day. After ravaging many districts, and taking the direction of the coast, it arrived at Bombay in August, 1818, having crossed to the western coast of the Indian peninsula in twelve months after its appearance at Calcutta. Through the country of its birth, it had the same characteristic which it still retains, having a measured rate of progression, with irregular halts, and a course sometimes direct and sometimes devious.

While the interior of Hindostan was thus suffering, the

pestilence had spread along the sea coast to Malabar and Coromandel, reaching Madras on the 8th of October.—Here it developed a new and alarming feature—its capability of being transported by sea; for it broke out in Candi, the capital of Ceylon, in December, 1818, with even greater violence than it did on the continent. By the 15th of September, 1819, Mauritius was infected, and, in the same month, the adjacent Isle of Bourbon. During the last six months of the same year, the epidemic had invaded the Indo-Chinese peninsula, Siam receiving more than its proportional share of misfortune. In Bankoe alone, forty thousand individuals perished. By the end of April, it was announced in Java; in 1821, Cochin China and Tonquin were invaded; and, in December of that year, it entered China at Canton. Peking received the enemy in 1821; and during that and the next year the mortality was so enormous that the poor were interred at the expense of the Government. Returning to Bombay, we must trace its route towards Europe. In July, 1822, through the intercourse between Bombay and Muscat in Arabia, the disease was conveyed to the latter, where it destroyed sixty thousand persons—many expired in ten minutes after the first attack. Hence it spread to many parts of the Persian Gulf—Bahrien, Bushier, and Bassora, at the last of which places fourteen thousand persons died in a fortnight. From the Persian Gulf, the Cholera extended inland in two directions, following the line of commercial intercourse. On the one hand, it ascended the Euphrates, traversing Mesopotamia into Syria, and the Tigris from Bassora to Bagdad. On the other side of the river, it made its way into Persia. In Shiraz, the population of which was forty thousand, there died sixteen thousand in the first few days. Ispahan escaped. This was thought to be owing to the caravans being prohibited from entering that city.

During several successive years, the malady invaded new countries, or reappeared in those it had recently scourged. Mosul, Beri, Aentab, and Aleppo were infected, and also Diarbekr and Antioch. It had then reached the Mediterranean on the one side, and also on the other side it had arrived at the borders of the Caspian. Finally, in September, 1823, it appeared in the Russian city of Astrachan, at the mouth of the Volga. In 1830, it revived in Persia with violence, and crossing the Russian frontiers, entered Teflis, the population of which it diminished from thirty thousand to eight thousand.

While it continued to devastate India, China, Persia,

and Syria, Europeans looked on as mere spectators, no doubt congratulating themselves on the impregnable barrier which their temperate climate opposed to its approach. But, as if at once to put to silence all human calculation on the subject, it passed over into the frozen regions of Russia in two directions. In penetrating the heart of the Russian Empire, it pursued the course of the Volga. Between the Cossacks of the Don and Moscow, several districts were ravaged in succession. In that city, the appearance of the destroyer was announced on the 28th of September, having travelled from Astrachan, above nine hundred miles, in less than three months. By the 18th of November, 5,507 cases were returned, and the deaths amounted to 2,908, more than the one-half. In January, 1831, the malady had subsided in Moscow, but had appeared to a limited extent among the troops marching to the reduction of Poland. The portion of the globe it had then ravaged included 70 degrees of latitude and 100 of longitude. The ravages it has since committed in Poland, and over different parts of the continent of Europe, (particularly at Paris,) and in America, are fresh in the recollection of all. With what effect it has visited our own shores, the memorials of the destruction that has marked its desolating course will long bear testimony.

Cholera, in this country, has assumed very much the character of an epidemic. In Sunderland, it prevailed with great malignity for some weeks before it appeared at Gateshead, though lying at a very short distance, and between which places the thoroughfare must have been very great. All at once, however, it starts up at the latter place, with its characteristic virulence, furnishing the report with seventeen cases on the first day.

During the time that it raged in Musselburgh, several persons came from that place to Edinburgh affected with the disease; but we have no authenticated account of its having extended farther than the individuals themselves, until the epidemic afterwards visited that city.

In our own town, during the winter of 1832, I had several sporadic cases, which assumed all the peculiar characters of the spasmodic Cholera, and two or three of these cases in its most malignant form, yet none of those appeared to be contagious. In a number of instances, during the spring of that year and beginning of summer, the disease was imported from Glasgow and elsewhere; but whether or not, by the judicious quarantine restrictions adopted by the Board of Health, it was prevented from spreading, I do

not pretend to say ; but the fact was, that it seemed to extend itself on these occasions, no farther than the persons importing it, or the families to which they belonged. The horrible epidemic at length came over the town like a shower, filling streets and lanes, in almost every quarter, with wailings and lamentations. The attacks, on the night of the 12th, and on the morning of the 13th of June, were simultaneous, and widely scattered over the town, without any apparent communication. In illustrating the awful visitation, on that occasion, I could not employ more appropriate language than that used by Mr. Jamieson, in his graphic description of the sudden attack of the epidemic on the camp of the Marquis of Hastings :—" The disease, as it were, in an instant, burst forth with irresistible violence in every direction. Unsubjected to the laws of contact, and proximity of situation, which had been observed to mark and retard the course of other pestilences, it surpassed the plague in the width of its range, and outstripped the most fatal diseases hitherto known, in the destructive rapidity of its progress." The phenomena, in my mind, could not be at all explained on the principles of communicated contagion alone. The mere cases reported were not so striking as the great numbers who were all at once seized with premonitory symptoms, and who were cured without ever being reported, as the district inspectors, of whom I was the senior, made it a point to report none but those in which the general characters of the disease were fully developed.

On this part of the subject I would merely add, that the disease not having, as yet, made its attack on Lisburn, as an epidemic, though only seven miles distant from Belfast, is a circumstance for which I confess myself altogether unable to account.

After all that has been written on the subject, and all the talent and ability that have been employed in its investigation, the mode of its travelling from place to place is still involved in absolute obscurity. It may, therefore, be very appropriately designated, "the pestilence that walketh in darkness."

SYMPTOMS OF CHOLERA.

The pathognomonic symptoms of this disease are pain of stomach, less or more severe, occasionally headache, tongue white and clammy, oppression about the præcordia,

tremors and debility, with a feeling of numbness and general uneasiness, succeeded by purging, vomiting, and cramps.

During the prevalence of the epidemic, the disease assumes almost every variety of character, both in its modes of attack, and in the general symptoms. In some cases, the attack is preceded by premonitory symptoms; in others, the patient is suddenly seized without any previous warning whatever. In many cases it commences with cramps of the stomach, bowels, and voluntary muscles; in others again there are no cramps, or pain of any kind, till the collapse stage comes on; and the disease has frequently proved fatal without any cramps at all. In some instances the purging is preceded by vomiting, but, in the greater number, the purging is the first of these symptoms, and the patient has no vomiting till he is verging on collapse. The symptoms, in the order in which they appear in the latter modification, I shall now describe.

The patient first complains of a general weakness, languor and lassitude, and what he calls a lightness in his head; an unusual feeling over the body; weight and oppression about the heart, with a disposition to sigh, accompanied with a sensation about the stomach and bowels, which the patient describes as a feeling of emptiness; his countenance is pale, and his features shrunk, the fluids appearing to have receded from the surface. These symptoms are followed by a rumbling sensation through the bowels. The sphincter, losing its contractile power, gives way, and the contents of the intestinal canal are then discharged. The bowels are affected at intervals of a few minutes, and the discharges become more and more fluid, till they present the appearance of whey, or rice or barley water. I have seen them in many instances nearly as clear and as transparent as rock water. The relaxation and weakness increase with each discharge. The stomach becomes sick, and the contents are thrown off. The patient now feels a desire for drink, but, as soon as he has swallowed it, it is immediately rejected. The sickness and retching complete the relaxation and dilatation of the discharging vessels, and the whole fluid part of the blood escapes. In proportion to the escape of the serous or watery fluid from the bowels, the temperature of the body decreases, till it becomes as cold as if dead. The pulse sinks in the same proportion, till it ceases to be perceptible at the wrist. Cramps then come on with all their torturing severity, and the voice is hoarse and stridulous. The breathing becomes laborious,

with a severe pain in the region of the heart, and the patient tosses himself about, anxiously and in vain looking for relief, which change of posture cannot afford. A profound coma calms the closing scene, and death seals the eternal destiny of the immortal spirit. This is a description of the symptoms as they occur, and of the order in which they appear in this form of the disease; and the whole process described is often completed within the space of half an hour.

In many cases the symptoms more gradually develop themselves. The discharges from the bowels are at longer intervals. The first of these consists of the natural contents, the next of a whitish matter, which becomes gradually more fluid and colourless, till it presents the appearance already described.

These modifications, however, are merely different degrees of the same epidemic, produced, no doubt, by peculiarity of constitution, or habits of life, or by the amount of the dose of the poisonous matter that has been communicated.

APPEARANCES ON DISSECTION.

“There is scarcely any morbid appearance found in the bodies of those who die in the early stages of Cholera. The brain is generally sound, but the great veins are always surcharged with blood, and with much appearance of congestion in those of the head.” In the numerous bodies opened by the Russian Physician Joenichen, “he invariably found fibrine separated in the heart, forming polypos masses, partly obstructing the great arteries.” Mr. Orton, in his voluminous work on the epidemic Cholera of India, quotes a number of interesting cases of dissection, which prove the extensive congestions that take place in the different organs of those who die of this disease.

As I had myself no opportunity of observing the appearances on dissection of those who died of Cholera, I shall give some extracts from the able report of the intelligent Dr. Keir, of Moscow, inserted in the appendix of Dr. Bisset Hawkins’ work on Cholera, as he appears to have attended most particularly to the morbid changes which occur in that disease:—

“The extremities in general were more or less livid and contracted, and the skin of the hands and feet corrugated, the features sunk and ghastly. On opening the skull, the

blood vessels of the brain and its membranes were more or less tinged with blood, particularly towards the base. The arachnoidea at some times, in several places, lost its transparency, and adhered to the pia mater. A fluid was sometimes found effused into the convolutions of the brain in some quantity, and more or less of serum in the lateral ventricles. The blood vessels of the vertebral column and spinal chord more or less loaded with blood, which was sometimes effused between its arachnoid and dura mater. Partial softening of the substance of the spinal chord was sometimes met with, and marks of inflammatory congestion in the large nerves. The lungs were generally gorged with dark-coloured blood; the cavities of the head were filled with the same, and frequently containing polypous concretions. In all the dissections I was present at, very dark-coloured blood, which, when extended on a white surface, resembled the colour of the darkest cherry, was found in the arch of the aorta, and in other arteries."

Furtheron, Dr. Keir observes, that all the other appearances in the stomach, intestines, and abdominal viscera, indicate a state of "*congestion, not inflammation;*" for he found that the liver was generally very full of dark-coloured blood; the gall-bladder much distended with tenacious ropy bile, of a dark-yellow or green colour, the gall-ducts sometimes contracted, at other times not; the appearance of the pancreas, spleen, and kidneys, was various, frequently differing but little from their natural state; in other cases, rather surcharged with blood; the urinary bladder almost always collapsed and empty, but that the stomach (which in one single case might, to a superficial observation, have been thought gangrened,) was, on being held up between the eye and the light, "evidently neither gangrenous nor dissolved in its continuity, but that its dark colour proceeded from a very general and great congestion of very dark-coloured blood in its vessels."—(*Dr. B. Hawkins on Cholera*, pp. 292-3.)

CAUSES OF CHOLERA.

Of the causes of Cholera I shall say nothing. The subject is still enveloped in mystery, and all that has been written on it is mere speculation.

RATIO SYMPTOMATUM.

Whatever the exciting cause of Cholera may be, its primary operation appears to be on the brain and nerves. The effect produced is a loss of their tone and energy, and a consequent diminution of the contractile power of the muscular fibre. This general relaxation and diminution of muscular power accounts for the weakness, languor, and lassitude that occur at the commencement. From the diminished elasticity and contractile power of the vascular system, the blood and other fluids of the body not being propelled with the usual *vis a tergo*, tend to gravitate to the lower and internal parts. This is the reason of the paleness of countenance, shrinking of features, and other symptoms which appear to indicate a receding of the fluids from the external surface in the premonitory stage of Cholera. And this gravitation and crowding of the fluids to the internal surfaces, accounts for the præcordial oppression, pain of stomach, &c. The circulating power of the blood vessels being diminished, these vessels do not carry the blood into the head, either with the usual force, or in the usual quantity. The brain being thus suddenly deprived of its accustomed bracing support, becomes further impaired as to its tone and energy, and is thereby rendered still less capable of exercising its functions. This, in the first place, causes that giddiness and lightness in the head of which the patient complains; and, secondly, it produces a further paralysis and relaxation over the body. The contractile power of the abdominal muscles, and of the muscular coat of the stomach being diminished, these become relaxed, and hence the feeling of emptiness and want of confidence of which Cholera patients complain. The excretory vessels (the extremities of the arteries) opening on the internal surfaces of the stomach and intestines, sharing in the same general relaxation, become dilated, so as to permit a more free escape of the fluid which presses into them. So complete have been the relaxation and dilatation of these vessels, in many instances, that they have allowed the escape of even the red particles of the blood, giving to the fluid passed from the bowels an appearance as if raw beef had been washed in it. The vomiting, where it succeeds the purging, is caused by the sudden depletion of the vascular system. Extracting blood suddenly from a large orifice produces the same effect—the patient becomes sick and faintish, and the contents of the stomach are thrown off. The same thing takes place

in uterine and other extensive hæmorrhages. The escape of the serous or watery part from the vascular system, causing an effect on the constitution similar to that produced by blood-letting, increases the relaxation. The relaxation and weakness thus increase with each discharge, till the whole fluid part of the blood passes away, the crude part becomes, as it were, stranded, and the vital powers are exhausted. In the last, or collapse stage, the ratio symptomatum is equally intelligible. The escape of the serous or watery part of the blood deprives it of that dilution or fluidity which is necessary to fit it for circulating through the minute ramifications of the vessels through which it has to pass. Hence the crowding of the red particles in the extreme vessels on the surface, which still become darker the longer they are deprived of that due arterialization which they undergo in passing through the lungs. This circumstance gives rise to the livid or blue colour of the skin, which is a prominent feature in the character of that disease. The sense of suffocation felt in the lungs, and the pain and anxiety felt in the region of the heart, are produced by the visciditv of the blood, the great excess of fibrine rendering it too crude to circulate through those organs. This has been satisfactorily demonstrated by dissection after death—the vessels of the lungs being found clogged or choked up with fibrine, and polyponous masses of the same substance being discovered in the ventricles of the heart, so as in a great measure to obstruct all circulation.—(See page 10.) It is difficult to prove whether the cramps in the collapse stage are caused by the extensive vascular depletion that has taken place, or by the circulation being retarded by the crudity of the remaining part of the blood. That they do proceed from either the one or the other of these causes, will appear evident from the history of a case which shall be given by and by.

The coma which in the collapse stage generally supervenes, is caused by the congestion of blood and separation of fibrine that take place in the great vessels of the brain, and sometimes from effusion of serum into its cavities.—(See page 11.) The draining off of the fluids from the circulating vessels accounts for the sudden shrinking and collapsing of the features.

PROGNOSIS.

FAVOURABLE SYMPTOMS.

Commencing with cramps of the voluntary muscles; heat of skin, at or above the natural standard; pulse soft, full, and strong; little thirst; bilious vomiting and purging.

UNFAVOURABLE SYMPTOMS.

No pain or cramps at the beginning; pulse small and feeble; heat of skin below the natural temperature; tongue a pale white, clammy, flowing with saliva, cold, relaxed and broad, having apparently lost all contractile power; suppression of urine; serous and watery purging and vomiting, and no smell emitted from the discharges.

In offering a few observations on the favourable and unfavourable symptoms, I would remark, that the disease has assumed four distinct states or degrees of morbid action, which differ materially in point of malignancy; and these four, as far as I have been able to observe, embrace all the forms of the epidemic. I shall take them in the order in which they appear least dangerous.

1. When the attack commences with spasms of the stomach, bowels, and voluntary muscles, heat of body at the natural temperature, with a strong full pulse, and slight retching or vomiting alone, if properly treated, there is no danger whatever.

2. The next in point of danger is where the disease begins with pain of stomach, less or more severe, oppression about the præcordia, headache, numbness of the extremities, with a prickling sensation over the skin, succeeded by purging and vomiting, or vomiting and purging—in some cases, of bilious matter; in others, of a whitish-coloured fluid.

3. A much more dangerous form of the disease commences with violent pain of the stomach, increased on pressure; intense pain across the forehead and in the eye-balls; face flushed; pulse quick, hard, and bounding; a painful sensation felt over every part of the body, similar to that experienced at the beginning of fever; heat of skin increased to a morbid degree; tongue exceedingly white, deeply coated, and furrowed; intense thirst, with deadly sickness at stomach; vomiting and purging, first of the natural contents, after which the fluid matter discharged from the bowels is of a greyish-white colour, granulated, and mixed

with particles resembling powdered ochre, and emitting a peculiar and intolerably fetid odour, exceeding any thing of the kind observed in almost any other disease.

Though this is not the most rapidly fatal form of the disease, still it is fraught with great danger, requiring prompt and active treatment; and the recovery may be more tedious than even where the disease has assumed the most malignant type.

4. In the last, and, according to our arrangement, most malignant form of the disease, viz., where the attack comes on with giddiness of the head, ringing of the ears, and purging, first of the natural contents, then of a fluid resembling thin mucilage, or barley water, pulse small and feeble, heat of skin below the natural temperature, without any vomiting, pain, or cramps, there is the greatest danger; and if the disease be not instantly checked, the patient may go down into collapse in less than one hour, and the disease may terminate fatally in three or four. I wish it to be particularly understood, that the most rapidly fatal attacks commence without any vomiting, pain, or cramps, or previous warning whatever. I have seen much of the fatal consequences of an error of opinion in this respect—the patient imagining that it could not be the Cholera with which he was affected, because he had no vomiting, or pain, or cramps, when, in point of fact, it was the most dangerous and fatal form of it; and when the vomiting and cramps did come on, they were only the fearful harbingers of collapse and death. The public generally, however, still appear to view an attack of purging with little apprehension, unless it be preceded or accompanied by these symptoms. This fatal delusion is not confined to the non-medical part of the community. There is nothing more common than to hear medical men giving it as their opinion, that a particular attack was a mere diarrhoea, because it had not been preceded by vomiting and cramps. Such an opinion is founded on inexperience, and is conceived in a total ignorance of the nature of the morbid action in Cholera; and the man who has acquired so little knowledge of that disease is not competent to treat it. In the most malignant form of the disease, the first discharges always take place from the bowels, and the patient does not vomit till the disease has carried him into hopeless collapse, or till he is at least verging on that stage. I again repeat it, that in all the most dangerous attacks, the purging precedes the vomiting, if they are not simultaneous. A knowledge of this fact cannot be too strongly impressed on the minds of the public.

If my recollection now serves me, all the cases of hopeless collapse, to which I have ever been called during my experience, were of persons who assured me that they had applied at the moment when the vomiting commenced, and that, in the absence of that symptom, they had attributed the previous purging to some other cause than Cholera. To sum up the whole, I would observe, that the danger, in every case, bears a proportion to the rapidity and amount of the discharges from the bowels, and *vice versa*.

METHOD OF CURE.

Cholera, like all other diseases, should be treated on rational principles; i. e. by varying the remedies according to the symptoms, and modifying the doses of the medicines as the necessity of the case may require.

The first object of the Physician, in the treatment of every malady, should be to find out what diseased action tends, either directly or indirectly, to destroy life. When he has ascertained this point, it will at once occur to him that the method of cure should consist in the removal, or counteraction of that morbid action. That the cause of death in Cholera, in every case, proceeds either mediately or immediately from the escape of the serous or watery part of the blood, is a truth demonstrated both by the symptoms which manifest themselves before death, and by the appearances on dissection; and that that fluid is carried off in the discharges from the bowels is equally well ascertained. Having established these positions, therefore, it will require no arguments to prove that the first step in the treatment of the disease should be to stop those discharges.

In offering a few remarks on the treatment of Cholera, it may tend to facilitate my object to give a list of the *formulae* which I have been in the habit of prescribing, and which have proved so successful. They are as follow:—

I. ANTISPASMODIC PILLS.

Camphor, half a drachm;
 Opium, twelve grains;
 Cayenne Pepper, nine grains;
 Spirits of Wine, and Conserve of Roses,
 of each a sufficient quantity.—Mix.
 To be made into a mass, and divided into twelve pills.

II. ANTISPASMODIC MIXTURE.

Sulphuric Ether,
 Aromatic Spirit of Ammonia,
 Camphorated Spirits,
 Tincture of Opium, of each a drachm ;
 Cinnamon, or Peppermint Water, two ounces.—Mix.

III. CORDIAL MIXTURE.

Brandy, or Whiskey and Cloves ;
 Ginger Cordial, &c.

I shall first point out the steps to be pursued in the treatment of Cholera, and then proceed to explain the *rationale* of the practice, and the *modus operandi* of the remedies.

I commence, therefore, with the malignant form of the disease.

The patient, on being seized with symptoms of Cholera, should be immediately placed in bed in the horizontal posture. Should he be affected with watery purging, or serous purging and vomiting, a feeling of weakness, with a soft, feeble and variable pulse, and heat of skin below the natural temperature, he ought to get instantly six of the antispasmodic pills, and an ounce of the mixture already described. The medicine should be washed down with a dose of some cordial stimulant, such as a glass of ginger cordial, or of whiskey flavoured with cloves, or some such warm aromatic spice ; or, if it should appear that the stomach would retain it, with a glass of whiskey or brandy punch, with essence of ginger in it. The punch to be made strong, and to be swallowed as hot as it can be let down. The body is then to be covered with additional blankets, and the usual means of communicating heat, such as jars or bottles of hot water, bags of roasted salt, or hot bricks, applied to the feet and different parts of the body, so as to restore the temperature, and to produce perspiration as quickly as possible. If one dose of the medicine shall be found insufficient to stop the discharges from the bowels, the half of the dose should be repeated, and, if necessary, an enema, composed of four ounces of boiled starch, with an aqueous solution of six grains of opium, or a drachm of laudanum, should be given, and its return resisted till it has had time to produce the desired effect. I have frequently seen the aqueous solution of the opium retained after the spirituous tincture had been rejected. *So much for whiskey injections.* If profuse perspiration be quickly produced, it will be seldom necessary to repeat the dose of the medicine. Should one dose of it

fail, however, to accomplish the object, more, I again repeat it, ought to be instantly given. There is no alternative. The escape of the serous, or watery part of the blood, must be stopped, or it will assuredly destroy the life of the patient.

When the discharges from the bowels cease—when the pulse becomes full and bounding, and the body is covered with a copious warm sweat, in ninety-nine cases out of a hundred all danger is over, and the individual may be well next day. The hotter the skin becomes when covered with sweat, the better; and, I would add, the less the danger. The great secret in the treatment of Cholera is to lose no time in stopping the discharges, and in exciting warm perspiration. This object should still be kept in view by the practitioner, no matter in what state he may find his patient. After giving such a dose of medicine as may stop the purging, his next effort should be, by the external application of heat, to produce a discharge from the surface. If, when called in, the heat be higher than natural, the perspiration will equalize the temperature; if lower, the heat will restore it; and if the body be covered with a cold, clammy sweat, it will change it to a warm one. It is remarkable how suddenly the pain of stomach, præcordial oppression, headache and spasms, if they exist, are relieved on the breaking out of a free perspiration; and what is of equal, if not of greater importance, is, that the vomiting in every case immediately ceases. I would here remark, that heat can be much more efficiently communicated by solid substances, such as I have mentioned, than by the hot air, or vapour apparatus. I have long since left that instrument aside as worse than useless. I would also observe that, in the application of external heat, a rational use should be made of the means, and I cannot see any necessity for increasing the temperature beyond what is merely required to keep up profuse perspiration.

As little drink as possible should be given till the perspiration has flowed freely for a few minutes, after which the stomach will retain it. The patient should then be indulged with copious draughts of sweet or rennet whey, warm toast water flavoured with ginger, mint or balm tea, or of any such mild beverage. The necessity of particularly attending to this shall be afterwards explained.

The sweating, if the patient can bear it, should be kept up for twelve hours, and may with advantage be continued moderately even longer. Its duration, however, must be regulated according to the strength of the patient and the

state of the pulse. After the first four or six hours, more heat need not be applied than what is agreeable to the feelings of the patient.

If the purging has been quick and violent, the bowels should not be disturbed for at least twenty-four or thirty-six hours after it has been stopped. It would be well in such cases, provided the patient be free from sickness at stomach, to allow the bowels to remain unmoved till the second day; they may then be opened by a mild laxative enema. Should, however, the state of the stomach, at the end of twenty-four hours, appear to render it necessary, it may be administered. In case, as it often happens, the patient on the second day complains of acidity in the stomach, and the bowels be confined, it will be proper to give him two table spoonsful of the following mixture every third hour, till a laxative effect is produced.

Calomel M^{or}phia, ʒss drachm;
Peppermint Water, eight ounces;
Sweet Spirit of Nitre, ʒss
Compound Spirit of Lavender,
Tincture of Cloves, of each ʒssss
Tincture of Camphor, half an ounce. M^{ix}.

This mixture will neutralize the acidity in the stomach, and restore the healthy tone of that organ. It will also act gently on the bowels, cleansing the tongue and cooling the system, and will promote the restoration of the healthy secretion of urine, which is generally suppressed in that disease. It is, besides, a valuable remedy in the consecutive fever which so often succeeds a severe attack of Cholera. If, however, in addition to acidity in the stomach, there be too great relaxation of bowels, the magnesia should be omitted, substituting aromatic spirit of ammonia, and camphorated julep, which, with the aromatics and bitters just prescribed, will remove the former without increasing the latter affection, and, if necessary, the tincture of opium may be added: or, if no pain, ten or twelve grains of the bi-carbonate of soda in a glass of water will answer the purpose.

The bilious vomiting, which so frequently occurs in the consecutive stages, may be relieved by a laxative enema. Bilious diarrhoea is to be treated with the cretaceous mixture, combined with suitable proportions of the tinctures of catechu and opium, and, if obstinate, by anodyne injections; the strength at the same time is to be supported with wine, chicken broth, and beef tea. The healthy tone of the stomach should be restored by bitters and aromatics. As soon as the discharges from the bowels have resumed their natural appearance, the patient should be indulged with

animal food—such as roasted beef, beef-steaks, or mutton-chops broiled. After the healthy functions of the body have been restored, the relaxation which has been produced by so much perspiration may be removed by sponging the body with vinegar, and rubbing with the flesh-brush or a coarse dry towel.

Great care should be taken not to allow the patient to get out of bed, or to stand in the erect posture, till the strength of the body and the healthy tone of the nervous system have been sufficiently restored. Fatal consequences have sometimes arisen from not attending to this precaution. In the Newtownlimavady Cholera Hospital, a woman, who had had a very favourable recovery from an attack of Cholera, lost her life by imprudence in this respect. Contrary to the orders and remonstrances of the Physician in attendance, she got out of bed, and while in the act of dressing herself in the erect posture, she suddenly fainted. The excretory vessels being unable to sustain the superincumbent weight of the fluids of the body, became dilated—the serum of the blood escaped into the bowels—the sphincter gave way, and she passed several quarts of fluid as clear as water. She was dead in two hours afterwards, having manifested all the symptoms of one who had been bled to death.

The milder forms of the disease are to be treated on exactly the same principle as the more malignant. In these, the external application of heat is equally necessary and equally efficacious. Where no purging has taken place, and the heat of the body is, at least, at the natural standard, with a good pulse and few symptoms of weakness, two or three of the antispasmodic pills will be sufficient for a dose; but, even in the milder forms, if the natural contents of the bowels have been discharged and there be a disposition to further purging, less than four of the pills should not be depended on. Where the premonitory symptoms are very malignant, with many indications of debility—a small, feeble pulse, with diminution of temperature and bodily strength, accompanied with paleness of countenance and shrinking of features, and with a feeling of faintness and emptiness—all which indicate an extensive loss of nervous energy and of muscular power, I often find it necessary to give six grains of opium, with some stimulating cordial, even before purging has taken place. In these cases, I have always prevented a further developement of the symptoms. It would, however, require considerable experience to enable the practitioner to act with the necessary prompt-

ness, and at the same time with safety, in such cases. The opium, camphor and capsicum have a tendency to relieve pain or cramps of the stomach and bowels where they exist, and to facilitate perspiration. When the attack commences with cramps of the stomach, bowels, and voluntary muscles, the antispasmodic pills and mixture, with the hot applications, will generally remove these symptoms at once.—Should these remedies fail, however, and any fixed pain or cramps of the stomach and bowels continue, a cloth, soaked in spirits of turpentine, applied over the parts affected, and covered with roasted salt, as hot as it can be borne, will give relief in a few minutes.

Should the practitioner find his patient affected with pain of stomach, headache, and vomiting alone, with a hot skin and a full, strong pulse, and should he discover that the bowels have been previously confined, he ought, before giving the antispasmodic pills or draught, or any preparation of opium, to cause them to be unloaded by means of an enema. This object being accomplished, two or three of the pills, and an ounce of the mixture, with the other remedies recommended, will generally be sufficient. It is scarcely necessary to observe that the quantity of opium must always be regulated by the necessity of the case. In a case of severe purging, an efficient dose of it should be given at once. Certainly not less than six grains for a first dose. This is much better than giving it in divided portions, for if the discharges follow each other in quick succession, one of these portions may be carried off unabsorbed before another be given. In this way, the practitioner calculating the quantity he has administered in a given time, may bewilder himself and lose his patient. I would, therefore, entreat medical men every where to give an efficient dose of opium at once. Where there is serous or watery purging, not less, as I have already stated, than six grains should be given for a first dose. I have myself often successfully administered to a patient twelve grains of this medicine within the first hour; and I have now the satisfaction to state that every one to whom I administered it in such large quantities recovered. It requires considerable experience, however, to enable the practitioner to judge in what cases such large doses of opium may be administered with safety. The narcotic effect of that medicine on the constitution is very much modified by the amount of the vascular depletion that has taken place. But more of this afterwards. I now state that I never saw any narcotic effect produced on a patient in Cholera by six grains of

opium. I have seen four grains of powdered opium, which is nearly equal to six grains of the same medicine in the solid state, administered to a child of eight years of age, without producing any narcotic effect, and the child recovered. I was under the necessity of giving, in the space of twenty minutes, six grains of solid opium to a girl of eleven years of age. The medicine produced no narcotic effect, and the patient recovered and was walking about next day.

The whole success of the treatment of Cholera depends on the first dose. If the first dose be inefficient, the second may be too late. I cannot find words sufficiently strong to reprobate the practice of trifling with two grains of opium or fifty drops of laudanum for a first dose in such a disease as Cholera. There is nothing more absurd or ridiculous than to hear a practitioner remonstrating with his patient about delay in application, while he himself is permitting a further escape of the vital fluid, by trifling with the third of the dose that would be required to stop it. When there is much vomiting, the opium, whether alone or combined, should be given in the solid state, as in this form it is more likely to be retained, and if rejected, the circumstance will be the more easily detected, and the practitioner will be thereby enabled to judge of the propriety of repeating the dose. Where there is purging without vomiting, the opium would act more immediately if given in the form of powder. From the process of drying, more opium will be contained in a given weight of that medicine in the pulverized than in the solid state. This circumstance, therefore, should be kept in view when administering it.

In collapse, little good can be effected by medicine. The recoveries from this stage are to be chiefly attributed to the *vis medicatrix nature*. Should purging continue, opium in its different combinations, as directed in the first stage, ought to be administered with that freedom which the urgency of the symptoms may appear to demand. Collapse, however, is, as has been already explained, produced by the extensive depletion of the vascular system. When the source from which the fluid discharged by purging and vomiting is thus exhausted, these symptoms cease. Here the time for opium being of much use has gone by. At the same time, as opium is a powerful medicine for restoring and supporting the *vis vitæ*, still even here its use appears to be indicated. The great object to be aimed at in the treatment of this stage of the disease is to excite the action of the absorbents opening on the internal surfaces of the stomach and intestines, with a view to their taking up the

mild drink which the patient swallows, and carrying it into the circulating vessels. This is to be accomplished by producing a discharge from the surface of the body, by the external application of heat, as already directed, and by restoring, as far as possible, the healthy tone of the nerves, and the contractile power of the vascular system, by opium and cordial stimulants. The drink should be mild, and whatever is most agreeable to the patient, as such is more likely to be retained and to be taken up by the absorbent vessels. Sweet or rennet whey is a good kind of drink under these circumstances. Collapsed patients are constantly urged with insatiable thirst, and a desire for cold water. As it is generally a safe rule to follow the dictates of nature, I can see no objection to indulging them in this respect. Sweet spirits of nitre should be mixed with the cold water. It is a valuable medicine in this stage of the disease, and I have seen much good produced by it; it determines to the surface, and promotes the return of the secretions. After the vomiting has ceased, I have given to a patient a tea spoonful of the spirits of nitre in a glass of cold water every half-hour with the best effects. This mixture was exceedingly grateful to the patient; it was not only retained on the stomach, but appeared to be rapidly absorbed into the circulating vessels, restoring the pulse and animal heat, and producing over the surface a profuse diaphoresis. The reaction on the surface, particularly over the stomach, may be promoted by sinapisms and stimulating embrocations. Friction, so much recommended in this stage, appears to be a very doubtful remedy. I never saw good done by it, but, in many instances, decidedly much injury. The shaking caused by it annoys the patient very much, produces vomiting, and increases the restlessness. Scarification and cupping may be of use where symptoms of congestion appear, particularly between the shoulders and along the course of the spine; and in the fatal coma in Cholera they may be applied also at the nape of the neck, and on each side of the spinous processes of the cervical vertebrae. Where the coma is profound, however, the eyes suffused and fixed in their sockets, with the pupils contracted and insensible to the stimulus of light, I never saw good done by remedies, nor any recover under these circumstances.

Consecutive fever is of rare occurrence, unless the patient has either gone into collapse, or approached very near to it; and we scarcely meet with an instance of it if there has not been considerable purging. Many die in this fever after having apparently escaped all the horrors of the disease; by

properly supporting the strength, however, and attending to the state of the stomach and bowels, they may in general be piloted through. This fever is caused chiefly by the congestions which take place in different parts of the body. These congestions may, in the consecutive stage, give rise to inflammations of the stomach, bowels, and other organs. Should such inflammations, therefore, occur, they will be best treated by sinapisms, fomentations, and local bleeding with leeches.

I do not conceive it necessary to go further into detail, my object being merely to explain the general principles; as, in the application of those principles to individual cases, and to the varied forms of the disease, much must be left to the judgment of the practitioner. When the physician finds that the safety of his patient depends on the immediate stopping of the discharges, should one dose of medicine fail to accomplish that object, he will see the propriety either of repeating the dose, or of giving such a proportion of it as the circumstances of the case may seem to require. In short, the mode of treatment described in the foregoing sheets consists, first, in giving such large doses of opium, and cordial stimulants, as will at once stop the discharges from the bowels, and restore the healthy tone and vigour of the nervous system which is partially paralyzed in this disease; and secondly, in correcting the morbid action by changing the determination of the fluids of the body from the internal surfaces to the external, by exciting profuse perspiration.

However useful then other remedies may be as auxiliaries, let it never be forgotten, that OPIUM and PERSPIRATION are the sheet and bower anchors which secure recovery in Cholera.

With regard to the *rationale* of the practice, and the *modus operandi* of the remedies, the first particular on which I shall remark is the posture of the body.

It has been already stated, that the primary operation of the exciting cause of Cholera appears to be on the brain and nerves—that the effect produced is a loss of their tone and energy, and a consequent diminution of muscular power—that the elasticity and contractile power of the vascular system being thus lessened, the circulating vessels are rendered less capable of performing their functions,—that the effect produced on the brain by this diminished circulating power, is a further loss of tone and energy, and that this further diminution of the tone and energy of the brain adds another link to the chain of the morbid action, by

completing the paralyzation of the resisting power of the vessels through which the serum escapes.

Now, it is evident, that, as it would require a greater power to raise a column of fluid against its own gravity than to propel it in a horizontal direction, so would it require a greater degree of contractile power and propelling force, to carry the contents of the vascular system to the head and upper extremities when the body is in the erect, than when it is in the horizontal posture. It is equally evident, that the vessels through which the serum escapes into the stomach and intestines would sustain a greater degree of pressure from the superincumbent fluids when the body is in the erect, than when it is in the horizontal posture. The necessity, therefore, not only of lessening the labour of the muscles, but of facilitating the action of those vessels, on the healthy and vigorous performance of whose functions so much depends, by placing the body at rest in the horizontal posture, must be obvious to every one.

The effect produced on the brain by the sudden withdrawal of the usual pressure and bracing support given to it by the influx and impulse of the blood, we see frequently exemplified in cases of fainting from weakness, or loss of blood. When the individual who has fainted is placed in the horizontal posture, so as to favour the influx of the blood into the head, the brain immediately regains its tone and energy, and resumes its healthy function. Again, the effect of position in increasing or diminishing the pressure on the circulating vessels is daily exemplified in the swelling of the lower extremities from weakness or long standing. Dr. Gregory had a patient affected with epistaxis (bleeding at the nose), whom he brought into his class-room for the purpose of exhibiting to his pupils the effect produced on the vessels by the position of the body. While this patient stood erect he was free from the complaint, but on stooping down, so as to increase the pressure on the weak vessels, the blood issued from his nose.

OPIUM.

The tincture of opium, when applied topically to the mouths of bleeding vessels, acts as a stiptick—it contracts their diameter and stops the discharge, as, for instance, when applied to leech bites, and to recent or bleeding wounds. In Cholera, it may act partly in the same way in

stopping the escape of the serous fluid into the stomach and intestines. Its chief agency, however, appears to be on the nervous system. It is one of the most powerful stimulants we possess. Taken internally, it increases the energy of the brain, and the heat of the body. It contracts the diameter of the circulating vessels, and diminishes all the secretions and excretions, except the cuticular discharge, which it increases. It increases the strength and frequency of the pulse, and produces an increased determination of blood to the head. On a *post mortem* examination of the bodies of those who have died from the effects of it, the vessels of the brain have been found more than usually gorged with blood. Opium is contra-indicated, therefore, in a plethoric state of the vascular system,—in inflammations, and where there is a tendency to apoplexy. Now, from these effects of opium, the reader will at once perceive why it is so useful in cases of extensive vascular depletions, such as take place in Cholera and in hæmorrhages, and why, under such circumstances, such large doses of it may be taken with safety. It is remarkable how much opium may be taken in Cholera without producing headache or drowsiness. From the foregoing observations, it is clear that the vascular depletion that occurs in that disease accounts for this anomaly. We always observe the same insusceptibility to its narcotic effects in persons who have suffered from an extensive loss of blood. Dr. Hamilton, of Edinburgh, the professor of midwifery, in his lectures on uterine hæmorrhage says, that no person, unless he had actually experienced it, can have any idea of the quantity of opium that a patient can bear where there has been extensive hæmorrhage.

From what has been already said on the *ratio symptomatum*, it is evident that an effect is produced on the brain in Cholera, similar to that which is produced on it by a loss of blood. Opium is useful, therefore, in both cases, on the same principle. By restoring the healthy tone and energy of the brain and nerves, and consequently the contractile power of the vascular system, it tends to contract the diameter of the vessels of the body, and to lessen their containing capacity. In this way it causes a more equal distribution of the blood, and thereby affords a better supply of it to the brain. Dr. Hamilton, the able professor, to whom I have already referred, has stated that opium is one of the most valuable medicines we possess for restoring and supporting the *vis vitæ* of a patient who is sinking from loss of blood. And if my notes, taken from his lectures, be correct, he

directs, under such circumstances, five grains of it to be given to the patient every twenty minutes or half an hour till the *vis vitæ* is restored. Opium appears to have a powerful effect also in restoring the tone and energy of the brain in Tetanus. In that disease enormous doses of it may be taken with safety. In the Edinburgh Medical Journal a case of Tetanus is recorded, where the patient took two fluid ounces of the tincture of opium at one dose, without experiencing any narcotic effect from it, and was cured by it. It must be evident that the same specific effect of that medicine which would be *injurious* in a *plethoric* state of the vascular system would be proportionably *salutary* in a *depleted* state of the vessels. It is equally evident that the greater the depletion is, the larger will be the dose of that medicine required to produce a given effect. Two grains of it would produce a greater effect on the nervous system, in the ordinary state of the vessels, than even ten, where vascular depletion has been such as to endanger the life of the patient. Had medical men been aware of this fact, and understood the nature of the morbid action in Cholera, and had they experienced the efficacy of large doses of opium in remedying the effects of extensive vascular depletion, they would have at once availed themselves of the agency of larger doses of that powerful medicine in checking the diseased action in that malady, and in counteracting the effects of it. They appear to have universally overlooked the fact, that the amount of opium required to produce a given effect on the constitution *depends entirely on the extent of the vascular depletion*. Ignorance in this respect has led to the fatal error of trifling with too small doses of that medicine in Cholera, and when these inefficient doses failed, of taking it for granted that the disease was incurable. It has been the general practice, even in the worst forms of that disease, to administer the opium in one or two-grain-doses, and to repeat these at longer or shorter intervals, while, as might have been expected, the discharge of the serous fluid from the bowels has continued unchecked, till the vessels of the body were completely drained of it, and the life of the patient destroyed. Now, practitioners might just as well, in these cases, have given none of this medicine at all; for, from the preceding observations it is evident, that if a dose of opium, sufficient to meet the exigency of the case, be not given in Cholera, at once, it will produce no effect whatever, and no repetition of lesser doses will answer the purpose. I have frequently had occasion to give ten grains of it for a first dose, and in many instances I have

given twelve grains within the first hour ; and, as I before stated, in all these instances the patients recovered.

CORDIAL STIMULANTS.

From the explanation of the morbid action in Cholera that has been already given, medical men will at once see the necessity of assisting the opium in restoring, and in supporting the tone and energy of the nervous system by stimulating cordials. The more malignant the attack, and the greater the symptoms of debility, the greater is the necessity for stimulants. Amongst the most useful of these are ether, aromatic spirit of ammonia, camphor, and alcohol, in the form of whiskey or brandy. The last, from the fact of its being less volatile than ether or ammonia, can, when necessary, be administered, mixed with hot water, which is a convenient way of conveying caloric into the system when the temperature of the body is below the natural standard. Another advantage attending the whiskey and brandy is, that they can be administered without dilution, the malignancy of the symptoms sometimes rendering this necessary. I have been called to patients in Cholera, whose nervous systems appeared to be so completely paralyzed, and whose heat-generating powers appeared to be so completely exhausted, that neither opium, ether, nor aromatic spirit of ammonia seemed to have any effect on them. On giving, in these cases, a glass of undiluted whiskey, flavoured with some warm aromatic, the patient immediately expressed himself relieved, the opium produced the desired and usual effect, the absorbents resumed their functions, and a glow of heat pervaded the body. This was succeeded by a profuse perspiration and a favourable recovery. Where the discharges from the bowels, in this disease, are serous or watery, with a feeble, variable pulse, the first dose of medicine should always be washed down with a glass of whiskey or brandy. Nature herself appears to indicate the propriety of the practice. Patients labouring under premonitory symptoms of Cholera, feel, almost invariably, a craving desire for stimulating cordials. Even the most delicate female will, under these circumstances, swallow with avidity a glass of undiluted brandy, made very hot, with essence of ginger in it. I have known instances of poor persons having taken a glass of strong whiskey with the extraordinary quantity of an ounce of ground mustard or pepper in it, without expe-

riencing from it any other than an agreeable sensation in the stomach; and if they previously complained of pain of that organ, it was instantly relieved by this remedy. I never repeat the whiskey or brandy after the first dose, but prefer, for supporting the strength, the use of the different wines, such as port or sherry. In the milder forms of the disease, ardent spirits may, in general, be dispensed with; and, where the other diffusible stimulants, such as ether and ammonia, would answer, we should give no countenance to the use of ardent spirits.

PERSPIRATION.

All the early symptoms in Cholera indicate an increased determination of the fluids from the external to the internal surfaces. Perspiration corrects this morbid action—it reverses the determination. By determining to the external surface, it relieves the stomach, intestines, and other internal organs from the symptoms which have been produced by the injurious rush of the fluids, and contributes materially to the stopping of the discharge. It is, therefore, a powerful agent in the cure of Cholera. No other remedy would stop the vomiting in a malignant case of that disease. And though, in such cases, the discharge from the bowels may for a time be checked by large doses of opium, yet, if the morbid action be not corrected by changing the determination of the fluids from the internal surfaces to the external by a profuse perspiration, they will assuredly return. When the perspiration has been made to flow freely for a few minutes, the vomiting and sickness at stomach invariably cease. Let the sweating be suddenly checked, however, or stopped too soon, and not only will these symptoms almost instantly recur, but if the discharge from the surface be not immediately reproduced, even the purging itself will be sure to return. Of these facts I have convinced medical men in every part of the country where I have treated that disease. All experienced medical men are aware of the remarkable sympathy that subsists between the external and internal surfaces of the body. Witness the alternations of colliquative sweats and diarrhoea that occur in the last stage of pulmonary consumption. When the latter symptom is checked, the perspirations become excessive, when these again are stopped, the colliquative discharges from the bowels return with violence. Much less opium is required to stop the purging, in cases where, by the early applica-

tion of external heat, profuse perspiration is produced, than where it is neglected. Indeed, where the sweating is promptly attended to, a second dose of that medicine is seldom, if ever, necessary.

Perspiration does more than merely correct the morbid action, it gives us the power of repairing the injurious effects produced by it. It has been already stated, that in Cholera the escape of the serous or watery fluid from the circulating vessels deprives the blood of its necessary dilution or fluidity, and renders it too crude to circulate, and that death, in that disease, is in every case caused, either directly or indirectly, by vascular depletion. Perspiration gives us the power of refilling these vessels, and of restoring the necessary fluidity of their contents. It may, however, be objected, that the drain of the fluids of the body, caused by an extensive discharge from the external surface in perspiration, will produce a depleting effect on the vascular system equal to that which is caused by a similar discharge from the internal surfaces—an effect the very opposite to that which we propose to accomplish; and I may therefore be asked, Why I recommend a remedy which produces on the constitution an effect similar to that which is caused by the disease itself? To this I answer, that the class of vessels of whose agency we must avail ourselves in remedying the effects of the disease, can best be made to act by this means; and that when the agency of that system of vessels is brought into operation, we have at our command the power not only of correcting the morbid action by changing the determination of the fluids, but of repairing the injury that has been already sustained. The class of vessels to which I allude is the absorbents. Perspiration excites their action. The exhausting effect produced on the vascular system by the discharge from the external surface, causes the absorbents, opening on the internal surfaces of the stomach and intestines, to act like as many syphons in taking up the mild drink, and in carrying it into the circulating vessels. Thus, we have it in our power, not only to supply the drain caused by the perspiration, but to refill the circulating vessels, and to restore the necessary dilution or fluidity of their contents. Perspiration, therefore, has the effect, not only of correcting the morbid action, but of repairing the injury produced by it. From what I have experienced, I am convinced that a malignant case of Cholera could not be cured without exciting such a perspiration as I have described. The application of external heat, therefore, should not be deferred, till the

cooling down of the system would appear to render it absolutely necessary. It should occupy a place among the first remedies that are used.

DRINK.

From the foregoing observations, it is evident that the cure of Cholera depends on the successful accomplishment of two objects—namely, the prevention of a further escape of the serous fluid, and the refilling of the circulating vessels. It is also evident that the latter object must be accomplished through the medium of the absorbent vessels opening on the internal surfaces of the stomach and intestines: and further, that the drain caused by the perspiration must be supplied from the same source. The necessity, therefore, of furnishing these vessels with a sufficient supply of suitably mild fluid, in the form of drink, will appear obvious to every one. It has been already stated, that while the perspiration continues to flow, the stomach will retain mild drink, and that the absorbent vessels, when brought into operation by the perspiration, will act like so many pores of a sponge in taking up the mild fluid conveyed into the stomach and bowels, and will carry it into the circulating vessels as fast as it will be required. It is clear, therefore, that the drink should be of the mildest description. I may here remark, that there could be no better drink in Cholera than sweet or rennet whey, when it can be conveniently procured, as it contains qualities very similar to those of the serum of the blood. Should it be asked how the quantity of drink is to be regulated, my reply is, that nature is the index. The amount should be always regulated by the feelings of the patient. While the perspiration flows freely, the patient should be indulged with mild drink *ad libitum*. The necessity of particularly attending to this will appear clear from the history of the following case of Cholera which I treated successfully when that disease prevailed in Belfast.

W. H., aged 47, residing off Carrick-hill, was seized with violent symptoms of Cholera, at three o'clock, A. M. I was called to him at eight the same morning. On entering the house, I heard him screaming from the violence of the cramps. I found his extremities cold; his pulse scarcely perceptible at the wrist—small, fluttering, and very irregular; his countenance ghastly; his face and hands of a livid colour, and the skin of the latter shrivelled

and corrugated. He had incessant purging and vomiting of a fluid nearly as clear as water, with an insatiable desire for drink. He was so weak and exhausted as to be unable to get out of bed. I had the body immediately surrounded with jars and bottles of hot water, hot bricks, and roasted salt. I gave him, at the same time, six antispasmodic pills, which I caused him to wash down with a glass of hot punch. The heat was very gratifying to him; and, wherever a cramp seized him, he begged that something scalding hot would be applied to the part. Some idea of the severity of the cramps, and of the patient's insensibility to any other feeling, may be formed from the fact, that after his recovery several deep eschars fell out of his legs where they had been burned by the hot bricks which were applied to them, though, at the time of their application, he felt no other than an agreeable sensation from them. During this process, I directed my attention particularly to the pulse. After the heat had been thoroughly applied, and the pills and the hot punch had been administered, the pulse became gradually more distinct and full, at the same time improving in strength and regularity. On referring to notes taken at the time, I find that at the end of fifteen minutes after the application of the external heat, and just twelve minutes after the swallowing of the medicines, the cramps had entirely disappeared. The pulse was then pretty full, and of tolerable strength and regularity. The countenance had become more plump, and the hands less shrivelled. The temperature of the body and extremities, which rose with the pulse, had now arrived at the natural standard, and a profuse perspiration issued from every part. The patient expressed himself completely relieved. I then gave him a pint of warm whey, of which he had been drinking previously to my arrival. As the symptoms now appeared favourable, and as extensive experience had given me the most positive assurance of the successful result of the same mode of treatment, I left the patient, promising to be back in half-an-hour. At the same time I gave the attendants strict orders to keep up the perspiration, and not to let the patient have any more drink in my absence, lest he should vomit the medicine, but directed them to have a jug of hot toast water prepared at my return. After taking my leave, I was so much hurried from place to place, and so much pressed by business, that this patient entirely escaped my recollection for above two hours, when I received a message that he was as ill as ever. On my way to him, it occurred to me, that if my directions

had been strictly followed, and if my hypothesis, with regard to the cramps being caused by retarded circulation, be correct, he must be cramped again, as the profuse discharge which issued from his body when I left him, if continued, and if not supplied by drink, must before then have produced a draining effect on the vascular system equal to that which had been produced by the previous discharge from the internal surfaces. Accordingly, on entering his house, I again heard his cries, and was met by his friends, who in despair told me that he was cramped worse than ever, though they had strictly followed my directions in keeping up the heat, and in refusing to comply with his urgent desire for drink. Though an accidental experiment, it was one very important and curious. I was anxious, therefore, to note down, with accuracy, every symptom. His face and hands, which were before livid, were now of a crimson hue. The prominences on these parts were sharp, and the depressions were hollow. The skin seemed to be sticking to the bones without any apparent intervening substance. The course of the veins was marked by hollow lines. The body and extremities had now become almost dry, (the fluid which supplied the perspiration appearing to be nearly exhausted,) and on touching them, their morbid heat, and parched state, communicated to the hand a very unpleasant sensation. Respirations quick, with great anxiety and pain in the region of the heart. Urgent thirst. There had been no discharge from either stomach or bowels after the medicine was administered. The pulse, at the wrist, was felt, like the ticking of a watch, at intervals of a few seconds, fluttering very quick, and presenting to the finger a degree of smallness similar to that of a fine cambric needle. Keeping my finger placed on the pulse, I ordered the patient to drink warm toast water *ad libitum*. The rapidity with which the drink was absorbed, and the sudden effect produced on the pulse by it, were very remarkable. More than a minute had not elapsed, after it was swallowed, till I felt a perceptible change. The intervals between the flutterings of the pulse became shorter and less perceptible. As it became fuller, it became more and more distinct, till it bounded full and strong. The veins filled in the same proportion till they became distended like rods. The breathing became natural, and the pain about the heart abated. The cramps then ceased, and a profuse sweat issued from every part of the body. This all took place in the course of eleven minutes, and the patient in that time drank above a gallon of fluid.

As the vascular system filled up, the complexion improved, till it became nearly natural, but rather florid. The external heat was gradually removed, the temperature of the body was reduced to the natural standard, and the patient felt free from every complaint. He was convalescent next day, though weak, and he was walking about on the fourth.

This accidental experiment proved that the cramps, in the collapse stage, are caused by vascular depletion. It also shows how rapidly the drink is carried into the circulating vessels when the action of the absorbents is excited by perspiration.

I have thus explained the nature of the morbid action in Cholera, and a mode of treating that disease, which, if promptly, boldly, and vigorously acted on, in proper time, will cure it in its most malignant form. This method of cure will be alike successful in every country, in every climate, and under every circumstance. From the station which I occupied in relation to that disease, and from the extensive experience in it which I have had, I flatter myself that my opinions on the subject are entitled to some weight.

My mode of treating Cholera differs from every other which has yet appeared before the public. It is not, however, founded on mere hypothesis, but on actual experience, and it has been matured by strictly logical deductions. I direct larger doses of opium than are recommended by any other, to be used in the cure of that disease. But I know the ground on which I tread—I have administered these doses myself, with unparalleled, nay, with never-failing success. I have also assigned to perspiration a station among the remedies to be employed in the cure of that disease which has not been given to it by any other.

My practice in Cholera has not been in a corner. It has been considerable in six different counties in Ireland. In every part of the country where I have treated it, I have frankly explained to the medical gentlemen who co-operated with me, my views with regard both to the pathology and therapeutics of the disease, and every where, and at all times, the remedies I employed, and the doses of the medicines which I prescribed were open to the inspection of all.

I have certainly assumed high ground for my method of cure. I have asserted that it will cure the disease in every case, if it be employed in proper time; but I appeal to those, in every part of the country where it has been adopted, who have witnessed its effects, whether it has not amply justified the high character which I have given to it. For the different testimonies in proof of its efficacy see appendix.

APPENDIX.

THE malignant Cholera has now traversed nearly the whole earth. It has been a fearful scourge to the world. Nothing short of a civil war could exceed the effects it has produced, whether in embarrassing the commerce, or in thinning the population of the countries over which it has passed. In whatever point of view we regard it, it is certainly a mysterious visitation of Divine Providence. Former pestilences were generally limited to continents, islands, or districts, but the limits of this fell destroyer appear to be nothing short of the boundaries of the globe. Regardless of climate, season, or circumstance, it has pursued the even tenor of its way, laughing to scorn the vigorous quarantine precautions which have been used to arrest its progress—devastation and misery marked its desolating course—consternation and despair led the vanguard of its approach to every land, and sudden havoc proclaimed its triumphal entry. It has accomplished mighty deeds of slaughter. In the course of its dread career, it has swept with it many a useful life. Many a fair form of grace and of beauty—the solace of a mother's heart, which, in the morning, flourished in all the pride of youth and of loveliness—in the evening fell before it like the tender flower and the green herb before the mower's scythe. It has hewn down its thousands, and its tens of thousands, affording to the grave and to the worm a bountiful harvest. Wherever it has appeared, it has left behind it melancholy proofs of its frightful character.

Still, however, I am surprised, that in this enlightened era of medical science it should have proved so extensively fatal. My surprise is increased by the fact, that I have never met with a disease more manageable, or more easy of cure. I find that it becomes formidable only when neglected, or injudiciously treated. That it has not generally been judiciously treated, is a fact which cannot be denied. It

has been too much the practice among medical men blindly to follow the opinions of others, without examining or thinking for themselves. The inductive method of arriving at the truth, cannot be of more importance in any other department of science than in medicine. Every physician should take care to compare the conclusions arrived at by other practitioners with his own observation of facts. In this way, he is the more likely to improve the science, and to practise with advantage and safety to his patients. Several of those who have written on Cholera, in these countries, are mere theorists without experience. The consequence of this has been, that the practice, in that disease, has too often been the sheerest empiricism. There has been no rational system universally pursued, nor has there been any regular plan of treatment generally adopted. The disease attacks suddenly, takes its victims and passes on, affording no time for reflection, or for the exercise of common sense in its treatment. Could there be a greater proof of the ignorance that has frequently prevailed on the subject, than the observations which were communicated some time ago to a London Medical Periodical, of deservedly high character, by one of its correspondents, who stated, that WHAT CURED THE DISEASE IN ONE STREET WOULD NOT CURE IT IN ANOTHER!!! A mode of treatment which will not cure the disease (the malignancy being the same) alike in all streets, will cure it no where.

Amongst the objectionable remedies which have been employed in the cure of Cholera, the first I shall notice is blood-letting. With regard to this remedy, I would observe, that I cannot conceive how any rational practitioner could think of using, for the cure of this disease, a remedy which produces on the constitution an effect the very opposite to that which it should be his object to accomplish. The effect produced by blood-letting is relaxation. It is with this view we generally employ it; as, for instance, in inflammations and in certain cases of rigidity. The depletion of the vascular system, suddenly removing the accustomed pressure or bracing support from the brain, has the effect of diminishing the tone and energy of that organ, and of course, of the nervous system; hence the supply of nervous energy to the muscles is lessened, and a correspondent diminution of the contractile power of the muscular fibre is produced. Now, from the foregoing observations, the reader will at once perceive that this is exactly what takes place in Cholera. Could it be imagined, then, that any rational physician, who knows any thing of the patho-

logy or therapeutics of this disease, could think of employing, for the cure of it, a remedy which would aggravate, rather than relieve the symptoms. Blood-letting should be discarded from the treatment of Cholera; it deprives the patient of many of his chances of cure, and by diminishing the resisting power of the vessels through which the serum of the blood escapes in that disease, it tends only to hasten the fatal event. All the symptoms at which any man could grasp, in justifying the use of the lancet in the early stage of Cholera, can be at once relieved by a free perspiration. The medical gentlemen who co-operated with me, in the different parts of the country where I treated that disease, had ample opportunities of witnessing how easily those symptoms, which are said to indicate the necessity of bleeding, can be cured by this means. At Bushmills, I was taken, in company with two medical gentlemen, to visit a young man of about 18 years of age, who was seized with premonitory symptoms of Cholera. One of the same family had died of it in a few hours illness, previously to my arrival, and three others had had violent attacks of it, so that he was the fifth one of the family who had taken it. He complained of great præcordial oppression; violent pain over the region of the stomach, increased on pressure; great sickness and retching, but nothing ejected from the stomach; a painful feeling over every part of the body as if he had been beaten with a stick; severe head-ache. His face was flushed; his eye-balls swollen and painful, with a feeling as if they were about to start from their sockets; his tongue white; his skin hot and dry, pulse 120, exceedingly full, strong, and bounding. His bowels had not been affected. I ordered him two antispasmodic pills, with merely as much mild warm drink as would wash them down. I then directed hot bricks, and bags of roasted salt to be applied to his feet and different parts of his body, with a view to produce perspiration, and took my leave. After the lapse of an hour I again visited him, in company with another medical gentleman, and found him perspiring freely, his skin quite cool, pulse 60, soft and regular, and entirely free from pain of every kind. He declared that he was then as well as ever he had been in his life, and expressed a wish to get out of bed. The crushing about his heart and the pains flowed off with the perspiration. He said that he had not perspired many minutes till he was free from pain, sickness at stomach, and every complaint. He had quite recovered and was walking about next day.

Though the use of the lancet, in Cholera, did not accord

with my view of the nature of that disease, I have seen it tried, but found, not only that it failed to accomplish the object for which it has been recommended, but that its effects were decidedly injurious to the patient. Should inflammation of any organ occur in the consecutive stage, it will be more properly treated by local bleeding with leeches, by cupping and fomentations.

CALOMEL.

Calomel, like blood-letting, tends only to hasten the fatal termination in Cholera. It does more—those who escape, or recover in spite of the effects of it, do so at the expense of a ruined constitution. The reasons which are given for using it in that disease, are absurd, and are founded on a total misconception of its nature. Some say that they give calomel combined with opium as a stimulant; “powerful stimuli.”—(See Appendix to Dr. M'Cormac's Pamphlet, page 27.) Opium is, as has been already stated, a powerful and very valuable stimulant, but the chief stimulating effect produced by the calomel is on the mucous membrane of the stomach and intestines, increasing the discharges from them, which it should be the practitioner's object to prevent. Mr. Orton, in the work to which I have already alluded, says, that the calomel was found adhering to inflamed patches on the internal surfaces of the stomach and intestines of many of those who died of Cholera in India. No doubt it had stimulated these parts with a vengeance. The following are that gentleman's own words:—“Calomel was frequently found at the bottom of the fluid contents, and adhering in various places to the mucous coat.” In a Note appended to the same, he adds—“I have been informed by a practitioner in whose observation I have great confidence, that he had frequently found this medicine adhering chiefly to those parts of the stomach which were *inflamed*.”—(See Mr. Orton's Essay on the Epidemic Cholera of India, page 42.) Here, then, is positive evidence of its destructive effects *even in India*—the boasted birth-place of the practice.

Others, again, say that they administer it with a view to restore the biliary secretion, which they allege is suppressed in that disease! On this subject I beg leave to observe that the suppression of the secretions in Cholera is not the *cause*, but the *effect* of the morbid action.

When the morbid action is corrected, the secretory organs generally resume their functions without any assistance, and even though they should not, it is only after the disease has been cured that medicine would have any salutary effect on those organs. First cure the disease then, and afterwards, if necessary, let attention be directed to the secretions. I would remark, however, that though the suppression of urine is a characteristic symptom of Cholera, yet it does not appear that the secretion of bile is ever suppressed in that disease, even though it does not come off in the discharges. On a *post mortem* examination of the bodies of those who have died of it, the gall bladder has always been found distended with bile. It is not, therefore, so much a suppression, as a retention of that fluid which accounts for its non-appearance in the discharges. Did time and space permit, I could satisfactorily explain the cause of its retention in Cholera. I do not conceive it right, however, to allow that explanation to occupy the space which should be allotted to more important matter, particularly as, when the disease was cured, I never knew an instance in which the secretory organs did not resume their functions; and, even though calomel should not counteract the effects of other remedies, or produce destructive effects on the constitution, I cannot see any use in employing it in a disease where it has no time to act. If the discharges be profuse and watery, and follow each other in quick succession, they may carry the patient beyond the boundaries of human aid in less than an hour. In such cases, the calomel has not sufficient time to be absorbed, even though the absorbent vessels were in a fit state to take it up. The absorbents, on the internal surfaces, in that disease, do not, however, act at all, till the morbid action is corrected. Those cases, therefore, in which it has produced salivation, do not deserve the name of Cholera.

The advocates for the use of calomel in Cholera, say, that all their patients who have been salivated by that medicine have recovered, and this they use as an argument in favour of the employment of it in the cure of that disease. Now, to those who do not understand the subject, this would appear to be a very plausible argument. A little examination, however, will show the fallacy of it. First, I would remark, that many have been subjected to treatment for Cholera who never had that disease in their lives. Secondly, During the prevalence of the epidemic, individual cases do sometimes occur, in which the *vis medicatrix naturæ* would succeed in throwing off the disease in spite of

the counteracting effects of the calomel. And, thirdly, The opium which is generally administered in conjunction with the calomel, and an accidental or intended perspiration, may succeed in curing the disease, as has been already stated, in spite of the counteracting effects of that medicine.

Whatever calomel may remain in the stomach and intestines of these patients, after the disease has been cured, will no doubt be absorbed, and will salivate them in good earnest. Thus, after the disease has been cured by other remedies, the calomel produces a new disease worse than Cholera itself. Hundreds have, in this way, and by this means, been so disabled, as to be rendered incapable of earning a loaf of bread for themselves, and have been left to drag out a miserable existence, with a shattered and ruined constitution, from the effects of calomel which had been administered to them for the cure of Cholera. Why, then, unnecessarily inflict such misery on those whose lives and constitutions have been committed to our responsibility?

A disease may be cured, therefore, by the remedies employed for its removal, or it may be thrown off by the healing power of the constitution, in spite of the opposing effects of improper medicine. Is, then, the fact of a few individuals having made hair-breadth escapes from pretended remedies, more destructive in their effects than the disease, for the removal of which they were employed to be made the ground-work of an argument in favour of the use of those remedies? Absurd. The indiscriminate, or Sangrado use of the lancet or calomel, in Cholera, is the rankest empiricism that ever was practised. Let us hear no more about "the vulgar error of condemning a medicine on account of the abuse of it." I have already proved that calomel is not only unnecessary in the cure of Cholera, but that it is destructive, and surely there cannot be a more "vulgar error" than the employing of a medicine unnecessarily, even though it should not be attended with fatal or destructive effects. I have cured above two thousand cases of Cholera without a single grain of calomel. I have a right, therefore, to say, that it is not only a destructive, but a useless remedy. Did I not trust that I have set the bleeding and calomelizing mode of treating Cholera at rest for ever, I could prove the total failure of the method of cure in every part of the country, as well as in Belfast; but, so trusting, and for the sake of the parties concerned, I shall be, for the present, silent on that subject.

NITRATE OF SILVER (LUNAR CAUSTIC), AND
TARTAR EMETIC.

I cannot pass a less censure on the use of scruple doses of nitrate of silver or of tartar emetic, in Cholera. There could be no greater proof of a man's total ignorance of the nature of that disease than his employing, for the cure of it, such imaginary remedies. Feeling that he cannot grapple with the symptoms, he recklessly commits a positive evil, for the purpose of giving his patient what he calls a chance. However usefully lunar caustic may be applied outside of the body, it will not do to begin to canterize such a delicate organ as the stomach with it. And the ingenuity of man could scarcely invent a more fatal practice, in that disease, than the administering of tartar emetic. I would rather submit myself to the tender mercies of Cholera itself, than put myself under the physician who would use either lunar caustic or tartar emetic in the cure of it.

REVIEW

OF

DR. M'CORMAC'S TRACT ON CHOLERA.

In briefly reviewing this tract, I shall use that freedom in discussing its merits, and in animadverting on its defects, which I freely concede to others with regard to my own, and which every man should evince in examining a public document, particularly where the public safety is concerned.

In the appendix to the second edition, and at the 23d page of the tract, the author says:—"The following is the mode of treatment which I follow, specifically laid down. If a person between 10 and 60, whether male or female, not much broken down or previously debilitated, be seized with the disease, whether with purging and vomiting, or purging, vomiting and cramps, I immediately take away from the arm, if the pulse be not weak and thready, from ten to thirty ounces of blood, the quantity being regulated by the strength of the individual, and the effects produced." To take away thirty ounces of blood from the arm of a patient affected with the malignant form of Cholera, viz., *purging, vomiting, and cramps*, is a practice which requires no comment. Few sensible physicians, who have tried the experiment once, will ever again repeat it.

After directions so vague and indefinite as these, the physicians throughout the country who had read Dr. M'Cormac's pamphlet, and with whom I happened to meet, might well tell me that they "could make neither head nor tail of it." Let any one just read over, again, the above extract, and after observing the number of conditions which it contains, ask himself how much definite information he has got in reference to the treatment of Cholera. To know when to bleed in Cholera, would, according to Dr. M'Cormac's directions, appear to be a very difficult matter, for the contingencies on which he makes the non-application of the remedy to depend, are so numerous, that scarcely will a single cas.

present itself in which some of them will not occur. "If the pulse be not weak and thready." It seems strange that any physician should direct the use of a remedy that produces symptoms, which, in the very same sentence, he says, contra-indicate the use of that remedy? Could he adopt a more efficient means to make the pulse "weak and thready" than blood-letting?

He next proceeds.—"To a man or strong woman, I give, while the arm is tying up, a scruple of calomel, with two grains of opium, both in powder, and washed down with some diluted ardent spirits, as gin, whiskey or brandy, united with from forty to sixty drops of laudanum." The quantity of opium and laudanum recommended here, if retained on the stomach, may, in a mild case (though certainly not in a malignant one), check the purging for a time, in spite of the scruple of calomel. But, should it not have that effect, or should the counteracting effects of the calomel re-produce the discharges, Dr. M'Cormac gives the following directions:—"In two or four hours, or every four hours, the medicine must be repeated if the symptoms are not subdued." Now, I beg leave to remark that, in a malignant case, *less than even half-an-hour's purging might hurry the patient beyond the precincts of human aid.* I have been called to hundreds of Cholera cases where one other alvine discharge would have carried the patient into hopeless collapse. Had I in these cases trusted to the dose of opium (counteracted by a scruple of calomel) recommended in Dr. M'Cormac's pamphlet, and, though it would have undoubtedly failed to relieve the symptoms, had I still waited according to his directions, for two or four hours, to see what that inefficient quantity of medicine might do, or what nature might do, or what chance might do, I would, unquestionably, in all these cases have lost my patient. But I did not so trifle with human life. I knew that I had but one course to steer, and by that point of the compass, I boldly, and fearlessly, conducted my patients into the haven of safety. I now speak under the correction of medical men in different parts of Ireland, and I fearlessly state, that I never yet lost a Cholera patient if his pulse was firm and regular when I first visited him. It is unpleasant for me to make observations relating to myself, but extraordinary circumstances sometimes oblige us to deviate from what might otherwise be our inclination. Every one to whom it would be safe to entrust the cure of Cholera, ought to know that the life of the patient depends on the immediate stop-

ping of the discharges; yet, according to the directions given in Dr. M'Cormac's pamphlet, though the practitioner were to witness the incessant escape of the vital fluid, still he must wait for two or four hours, to see "if the symptoms are subdued," previously to his giving his next *scruple of calomel*, and two grains of opium!!! How ridiculous!

I shall now proceed to show the absurdity of the practice, and its likelihood to prove destructive to the constitution of the patient, even though he should recover. Supposing that the symptoms should continue, or recur at intervals of two hours, for, say twenty-four hours, a circumstance not at all improbable, from the counteracting effect of such enormous doses of calomel, the patient will have taken, in the course of that time, (if he were to live so long,) the extraordinary amount of thirteen hundred and twenty drops of laudanum, and two hundred and forty grains of calomel. A pretty round dose one would think! He further directs. "To a child the quarter of the dose, and to an infant the eighth part." Should the child and the infant be subjected to the same treatment for twenty-four hours, all the circumstances being the same as those supposed in the cases of the man or the strong woman, the child will have taken, in the course of that time, three hundred and thirty drops of laudanum, and sixty grains of calomel; and the infant one hundred and sixty-five drops of laudanum, and thirty grains of calomel; a tolerably smart dose truly for an infant of one or two weeks old! If this be not building up with the one hand, and pulling down with the other, with a vengeance, I shall give up all claim to common sense. The public, however, will be able to draw their own conclusions. Is it any wonder, then, that so many unfortunate creatures, with ruined constitutions, have been obliged to throw themselves, paupers, for life, on public charities.

The most fatal and unwarrantable part of the treatment I have yet to notice.—"To an ordinary woman, or weak man, I administer half this dose." Half the dose, let it be remembered, is *one grain of opium*, and twenty or thirty drops of laudanum, with ten grains of calomel. What the author means by an ordinary or extraordinary woman is perfectly unintelligible to me. I shall give him the advantage, however, of supposing her to be a woman of ordinary strength and constitution, and confine my observations principally to the weak man, and they will apply equally to the ordinary woman, no matter in what respect she may be ordinary. Before proceeding further, however, I would remark, that however fortunate it might be for the woman

or the man to be placed on the ordinary or weak list, with regard to the allowance of calomel, they would be awfully at fault with regard to the dose of opium. I now state, most distinctly, that one grain of opium, and twenty or thirty drops of laudanum, every two or four hours, would never cure a patient affected with the malignant form of Cholera, no matter how ordinary or how weak she or he might be. What could have led Dr. M'Cormac to imagine, that the half of his usual dose would be sufficient for a woman, I cannot by any means conjecture. Experience has taught me that females require as large doses of medicine in this, or in any other disease, as males do. The greatest absolute quantity of medicine, and the largest doses that I ever administered to one individual affected with Cholera, was to a woman, who was at the time very weak, and she is at this day alive, and in good health, but I gave her no calomel. In a more recent case, in the Belfast Cholera Hospital, I gave to a woman, aged 45 years, twelve grains of opium *within the space of one hour*, and, though it was all retained on the stomach, she showed no disposition to sleep after it. This woman had been ill for several hours—was verging on collapse, and was so weak that she could scarcely stand erect without being supported when she got the first dose of *seven grains*. It was found necessary to give her a second and a third dose within the hour, making in all twelve grains, after which, and a profuse perspiration, she had no return of the symptoms. She was walking about on the third day, and she is now in the enjoyment of good health. It might be well to remark, that this woman, though the weakest patient that was admitted, during my time, in the Hospital, (with the exception of a man aged 79 years, who was brought in *moribund*,) got a larger dose of opium, by two grains, than was found necessary to be given to any other, whether male or female. Had I given to this woman one grain of opium, and twenty drops of laudanum, and waited two or four hours before I repeated the dose, she would soon have been food for worms. So much for the ordinary woman.

A man, though a Goliath in stature and in strength, previously to his being attacked by Cholera, may be rendered weak enough by its first onset. The more malignant the attack is, it is accompanied with the greater weakness. And the greater the weakness, the larger doses of medicine are required. Should the strength of the patient be prostrated by the malignancy of the first attack, is it not evident that the "*vis medicatrix nature*" (healing power of nature)

would share in the same prostration or weakness, and would, therefore, require the greater assistance,—certainly the less could its agency be depended on. This is not mere theoretic speculation. It must be evident to all who shall have read my observations in the foregoing pages, as well as to those who have ever cured a malignant case of Cholera, that where there is serous or watery purging, accompanied with a feeble, and variable pulse, debility, and diminution of temperature, a much greater quantity of medicine is required to check the symptoms than where such accompanying circumstances do not exist. Even the very circumstance of the patient's weakness and danger, requires that no further reduction of strength should be permitted. He should, therefore, at once get an efficient dose of medicine. The more dangerous the symptoms are, the more imperatively do they demand prompt and powerful relief. Yet in this malignant and rapidly fatal form of the disease, in which the largest doses of medicine are peremptorily required, Dr. M'Cormac says he gives one grain of opium, and twenty or thirty drops of laudanum, "every two or four hours, or every four hours," till the symptoms are subdued, even though the opium is to be counteracted by the ten grains of calomel with which he accompanies it!! I again most solemnly assert, and my assertion is founded on extensive experience and observation, that one grain of opium, and twenty or thirty drops of laudanum, administered every two or four hours, in a case of Cholera such as I have described, would never subdue the symptoms till the king of terrors would impress his cold seal in testimony of the futility of the practice. Any cases, therefore, that have been cured by such treatment, do not deserve the name of Cholera. Yet, in the same page, Dr. M'Cormac says, "in general, however, I find five grains of calomel and one grain of opium sufficient!!" So much for the "terribleness" of Dr. M'Cormac's cases. Is it any wonder, then, that Cholera has been so fearful a scourge to the country? Not the least. My only surprise is, that it has not been much more disastrous. Yet, be it remembered, that this is the pamphlet which has been put into the hands of country practitioners, who had never previously seen the disease, and who were, on that account, found fault with, by Boards of Health and others, if they attempted to exercise their own judgment and previously acquired skill, and were, thereby, led to remonstrate against the absurd practice.

"If," continues the author, "the medicine be thrown off,

in whole or in part, the whole or a part of the same dose, as it may appear, must be immediately repeated." Now, I would like to know by what analytic process this fact could be accurately ascertained in a case where laudanum and powdered opium, with calomel, have been given. I have already stated, that where there is much vomiting, the opium, whether alone or combined, ought to be given in the solid form, in which state, if rejected by the stomach, the circumstance can be at once detected; otherwise the practitioner has no means of ascertaining the exact proportion of the opium that has been thrown off. He, therefore, gets into confusion, and it is more than likely will lose his patient. At the 26th page, Dr. M'Cormac makes the following remarks—"Now I shall say a word on the mode of action of the remedies which I have enlarged on so panegyrically. First, as to heat, every one knows that without a certain degree of heat we must surely die; the absence of this alone, then, would prove the certain cause of death in Cholera. No other reason need be urged for employing it." My observations on the *rationale* of my practice, and on the *modus operandi* of the remedies which I employ, are a sufficient commentary on this extract. What an admirable discovery this author has made!!! Little the world knew that cooling the body of a patient, in Cholera, down to five hundred degrees below Zero, would be a certain cause of death, in that disease, till Dr. M'Cormac revealed the secret. "No other reason need be urged for employing it"!!! I shall leave this extract to speak for itself. Having made these observations, I would remark, that it is particularly painful for me to take any notice of Dr. M'Cormac's pamphlet. Circumstances, however, have rendered my doing so indispensably necessary.

TESTIMONIALS.

In proof of the universal success of the mode of treatment which I have described and recommended in the foregoing dissertation, I beg to refer the reader to the following documents and testimonials:—

“ Board-Room, Dungannon, Dec. 24th, 1832.

“ DEAR SIR,—The Dungannon Board of Health take leave, now that Cholera has subsided in this town, to convey to you their most grateful acknowledgments for the eminent services you have, under Providence, rendered in checking that destructive disease, which has raged with such virulence amongst us. From the success of your treatment, they have ample proofs of its superiority, and cannot omit expressing their approbation of your humanity, and of the alacrity with which you hastened to the relief of those who were seized with that dreadful pestilence. Your exertions to preserve life, and your anxiety to afford immediate relief to the sufferers labouring under this terrible malady, are beyond all praise.

“ As a memorial of their sentiments, and as a token of their unfeigned gratitude, they beg your acceptance of the accompanying Piece of Plate ; and they assure you, Sir, that you carry with you their sincere affection and esteem, and their best wishes for your professional advancement and future success.

“ Signed by order of the Board,

“ JOHN PEEBLES, SECRETARY.

*“ To George S. Hawthorne, Esq., M.D.,
Physician to the Belfast Fever Hospital, &c. &c.*

“ INSCRIPTION.

“ Presented to GEORGE S. HAWTHORNE, Esq., M.D., Physician to the Belfast Fever Hospital, &c. &c., by the Board of Health, and the inhabitants of Dungannon and its vicinity, as a token of their unfeigned gratitude for his successful treatment of Cholera in that town.”

“ ANSWER.

“ GENTLEMEN,—To say that I am grateful for your generous present and flattering address, would very inadequately express the emotions of my mind. The value of your gift, though splendid in itself, has been very much enhanced by the manner in which it has been presented.

"While I must confess that your partiality has over-rated my merits, I cannot conceal the fact, that to be honoured by such an expression of approval of my humble services and conduct, by the Board of Health, and the highly respectable inhabitants of Dungannon and its vicinity, who, in point of station and intelligence, may rank with those of the first town in the empire, is not only grateful to my feelings, but stimulates my ambition to apire, by renewed exertion, to further honours. This expression of your esteem is only in unison with the kind and polite attention I received from you all during my short residence amongst you. I do assure you, Gentlemen, that while a heart throbs within my breast, I shall cherish the pleasing recollections to which your kindness has given origin; and gratitude and affection shall ever afterwards, in my mind, be associated with the name of Dungannon.

"To the talented and highly respectable Medical Gentlemen who co-operated with me during the deadly conflict, I acknowledge my obligations. I feel much indebted to Surgeon Dawson for his kindness, as well as for the efficient assistance he rendered me in grappling with the enemy. The warmth with which he entered into my views of the pathology and treatment of the disease, was to me very gratifying. I believe him to be a gentleman whose worth only requires to be known, to make him universally esteemed and respected.

"To Surgeons McIlroy and Hamilton, I return my sincere thanks for their valuable assistance; and I have no doubt that those talented young gentlemen will yet be distinguished members of their profession.

"I have the honour to remain, Gentlemen,

"Your ever grateful and humble servant,

"GEORGE S. HAWTHORNE.

"*Belfast, 20th Dec. 1832.*"

The following letter is from that highly respectable and able practitioner, Surgeon Dawson, of Dungannon:—

"*To GEORGE S. HAWTHORNE, Esq., M.D., &c., Belfast.*

"Dungannon, 10th January, 1834.

"MY DEAR SIR,—It being now more than fourteen months since I had the happiness of becoming acquainted with you, and having received from you the most important information on the subject of Cholera, I think I cannot better evince my gratitude, than by stating the result of my practice in Cholera cases, during the above period.

"Upon this awful epidemic making its appearance here, we commenced our treatment with giving *calomel*, combined with opium, and repeating the dose at intervals of four hours, at the same time giving warm brandy and water, enemas, and applying heat externally. This mode of practice proving unsuccessful, it was thought expedient, by the majority of the Board of Health, to despatch one of its members to Belfast, to obtain the assistance of some one of the faculty who had taken part in the treatment of Cholera there. Fortunate, indeed, it was for the inhabitants of Dungannon, that you were selected; for sure I now am, from experience, that had we obtained the aid of a person who would have pursued the same mode of treatment as that with which we began, (the *calomelizing system*), instead of recording 60 deaths out of 340 cases, we might have had to lament as many deaths, in proportion to the cases, as have occurred in those districts, where, unfortunately, mercury has been used. I may now recall to your recollection that of the above number of deaths many of the cases had been so freely impregnated with calomel, that we found it impossible to check its action on the alimentary canal. Some, too, of the cases were concealed until in *articulo*

mortis. So, that if we were to make the foregoing deductions, the deaths would be few, indeed, compared with the number of recoveries. Since the disease ceased here, I have had many, very many convincing proofs, for several miles around this town, of your superior mode of treatment. Amongst others, I might select that of a neighbouring village, unhealthily situated in a low valley, with a canal flowing into its centre, where I attended 33 cases, (without the advantage of an Hospital), of which number only five died; and what, perhaps, is singular, the first man and first woman who had the disease are living and well, and you may easily imagine that the latter was very ill, when I tell you the coffin was prepared for her. In truth, I never saw so frightful a case of collapse in Hospital (much less out of one) recover. So that from the moment you corrected the false ideas I had imbibed of Cholera, I have not used calomel, or any other medicine in the treatment of this frightful disease that tended in the least degree to increase the peristaltic motion of the bowels. On the contrary, I have given *opium*, (as the sheet-anchor,) combined with the other diffusible stimuli, and plenty of watery diluents, as set forth in your invaluable pamphlet; and my success has been in proportion to the promptness and boldness with which I have administered them. Would to God, my dear Sir, your mode of practice, in Cholera, was more generally known, as then it would not be so fatal a scourge as it unfortunately now is. Did time permit, I could relate some very extraordinary recoveries out of collapse, under very discouraging circumstances; but, as my present object is to communicate to you the pleasing fact, that the more I see of this disease, the more I am convinced of the excellence of the mode of treatment introduced by you, and to assure you that I have not forgotten the invaluable services you have rendered, not only to the inhabitants of this town, but also to

"My dear Sir, your ever gratefully obliged Servant,

"WM. DAWSON, M. R. C. S. L.,
"Member of the Board of Health."

"Board-Room, Dungannon, 20th January, 1834.

"In consequence of recent discussions, in the public prints, on the subject of Cholera, the Board of Health feel called upon to state their decided approval of the mode of treatment of that disease introduced here by Doctor Hawthorne; and, in confirmation thereof, give the annexed abstract of the number of cases treated, in and out of Hospital, on his plan.

"Signed by order,

"JOHN PEEBLES, SECRETARY.

Number of extern cases,.....	241
Do. of intern do.	113
Total,.....	354

Deaths, extern,.....	36
Do. intern,.....	24
Total,.....	60

From which, deduct cases previously treated by other Medical gentlemen, not employed by the Board of Health,.....	} 13
	47

Number of collapsed cases admitted into Hospital,.....	} 36
Of which number died,.....	
	23

Number of collapsed cases, extern,	36
Of which number died,.....	31

"WM. DAWSON, M.R.C.S.L.,

"Medical Superintendent of the Hospital."

The following addresses were forwarded to me, when I was superintending the treatment of Cholera, at Newtownlemavady, in the county of Derry :—

"To Doctor HAWTHORNE of Belfast.

"DEAR SIR,—I received the enclosed paper last night, and to my being in the neighbourhood of your present labours, I am indebted for the gratification of forwarding it. I believe I may say, that, with reference to its population, no place has had more cases of malignant Cholera than Bushmills. I can add, from my own knowledge, that no individual, who, at the commencement of his disease, had the fortune to fall under your care, was lost to his family; that, shortly after your arrival, mortality ceased—that implicit reliance upon you was manifested by all—and that despair was relieved by the most cheering expectation. You have, under Providence, by your skilful, active, incesatigable exertions, rescued many from death, and many, many more, from consequent affliction. In a consciousness of your beneficence, you have the best reward; yet, I trust, you will receive a well-merited offering of gratitude with pleasure. The tribute is due by those, who, with the gracious permission of God, have been delivered from pestilence and calamity, by your immediate means.

"I am, dear Sir, your faithful, and (in common with others) your grateful humble servant,

"F. WORKMAN MACNAGHTEN.

"Roe-Park, Thursday, the 1st April, 1834."

"To Sir F. WORKMAN MACNAGHTEN, Roe-Park.

"SIR,—I had the honour to receive your very flattering letter, enclosing the Address of the Bushmills Board of Health. I am altogether at a loss for words to express my gratitude to you, for your kind and condescending attention to me, both at Bushmills, and since my arrival in this place; and I do assure you, Sir Francis, that this feeling has been much increased by the highly flattering manner in which you have expressed your approval of my humble exertions. To be honoured by such a testimonial, from a gentleman, distinguished no less for a highly cultivated mind, than for an exalted station in society, is a circumstance of which I feel that I have just reason to be proud.

"I have the honour to be, Sir Francis, your ever grateful and humble servant,

"GEORGE STUART HAWTHORNE, M.D.

"Newtownlemavady, 5th April, 1834."

"To Doctor HAWTHORNE, Belfast.

"Bushmills, April 3, 1834.

"DEAR SIR,—We, the undersigned, beg leave, on our own behalf, and on that of the inhabitants of the parishes of Billy and Dunluce, to return you our most sincere and grateful thanks for your very efficient and unremitting exertions during the late visitation of epidemic Cholera in Bushmills and its vicinity; and which, owing to your skilful management of the disease, under Divine Providence, has now almost entirely

been removed from among us, rendering your further continuance here no longer necessary. The liberality you have manifested, in frankly and undisguisedly explaining, both to medical men and others, your clear and effective mode of treatment, deserves our warmest acknowledgments and commendation. And it is but justice to you, Sir, to declare, that not a single death took place in any of those cases which occurred subsequently to your arrival in Bushmills.

"We remain, dear Sir, with much esteem, your very sincere friends,

"F. Workman Maenaghten,
William Trail,
James Morewood,
Walter B. Mant,
James S. Moore, J. P.,
James O'Hara, Clerk,
James Milligan, Clerk,
Hugh Hamill, Pres. Min.
W. M'Laughlin, P. P.,

Hugh Anderson,
Robert M'Naull,
Robert Taylor,
William M'Mullan,
William Anderson,
John Gwynne,
John Moore,
Bernard Stewart."

"In addition to the above, in which, as members of the Board of Health, we most sincerely concur, we, the undersigned, feel it our duty to express our most unqualified conviction, that your plan of treatment is the best and the only safe one; and, that if sufficiently early and efficiently put in practice, even in the most virulent form of the disease, and universally adopted, it is calculated to save many an useful life, and render a most formidable disease comparatively mild, and less fatal than most other epidemics.

"We are aware that your skill, talents, and experience, give you a great advantage in the treatment of Cholera; and we hope that a discerning public, and your medical brethren, will speedily award you, with one consent and one voice, that commendation and praise which you so well deserve, and which, we trust, you will long live to enjoy.

"Wishing you health and happiness, we remain your's, very sincerely,

"WILLIAM TRAIL, M. D.
ROBERT DUNLOP, Surgeon.
ARTHUR MACAW, Surgeon.

"April 3, 1834."

"Newtownlemavady, 5th April, 1834.

"GENTLEMEN,—I am truly grateful for the kind and flattering manner in which you have expressed your approval of my humble services and conduct while I remained at Bushmills. Though I must confess that your partiality has over-rated my claims to merit, yet, I cannot but feel that such an Address, from gentlemen so distinguished, in point of intelligence, and so elevated in point of station, is another proud testimonial in favour of the efficiency of the mode of treating Cholera, which I have matured, and so successfully pursued, both at Bushmills, and in different other parts of the country. I have, I trust, proved to your satisfaction, not only that Cholera is curable without bleeding and mercury, but also, that it is curable in its most malignant form. Were the method of cure, which I have recommended, generally adopted, it would soon rob this appalling disease of its terrors, and the physician who would act on it with promptness and boldness, would seldom have occasion to shelter himself under the plea of broken down constitutions, in accounting for

deaths. I do hope that the good sense of medical practitioners will lead them to reject a destructive and dangerous practice, and to adopt a mode of cure which has been proved to be both safe and efficient.

"With every feeling of gratitude and esteem for the kind and polite attention which I received from you all, during my stay at Bushmills, I have the honour to remain, Gentlemen, your faithful and very humble servant,

"GEO. STUART HAWTHORNE, M. D."

"To WILLIAM TRAIL, Esq., M. D., Ballinacorney."

"MY DEAR SIR,—I cannot express to you what I feel for your kindness to me, and for the highly flattering manner in which you are pleased to express your opinion of my humble talents and acquirements. I must attribute much to the goodness of your own heart, as I am fully sensible that the opinion you have expressed is beyond what I deserve. I gladly avail myself of this opportunity of bearing testimony to the zeal and Christian benevolence which you displayed in your indefatigable exertions to preserve the lives, and to relieve the sufferings of the poor of Bushmills. I know that a rich reward awaits you in another and in a brighter world. To Surgeons Donlop and Macaw, who have kindly subscribed their names, I return my sincere thanks.

"I have the honour to remain, my dear Sir, very faithfully yours"

"GEO. STUART HAWTHORNE, M. D."

"Newcastle-upon-Tyne, 3rd April, 1834."

